

WHAT IS CLAIMED IS:

1. A method for detecting a mobile unit by a Base Station, wherein frequency-hopping is used to communicate between Base Stations and mobile units, comprising:

at a Base Station that is connected to a mobile unit, periodically yielding a hop; and

during the hop which has been yielded by the Base Station connected with the mobile unit, communicating with the mobile unit from at least one neighboring Base Station.

2. Method, according to claim 1, further comprising:

at neighboring Base Stations that are not close to each other, using the same hop to communicate with the mobile unit; and

at neighboring Base Stations which are close to one another, using different hops to communicate with the mobile unit.

3. In a wireless communication system comprising a Base Station connected with a mobile unit, a method of detecting a handset by at least one Base Station which is waiting for the mobile unit to enter its coverage area, comprising:

from the at least one Base Station waiting for the mobile unit to enter its coverage area and the Base Station connected with the mobile unit, sending a PING command to the mobile unit; and

at the Base Station waiting for the mobile unit to enter its coverage area, receiving an ECHO reply from the mobile unit.

4. Method, according to claim 3, further comprising:

from the Base Station waiting for the mobile unit to enter its coverage area, sending the PING command during a time interval that the Base Station connected with the mobile unit has yielded.

5. Method, according to claim 3, further comprising:
at each Base Station receiving the ECHO response, measuring the quality of the ECHO response and reporting the quality measurements to a Switch connected to the Base Stations.

6. Method, according to claim 3, further comprising:
measuring the quality of each ECHO response by a technique selected from the group consisting of energy level measurement, signal-to-noise ratio (SNR) measurement, packet loss ratio, and bit error rate measurement (BER).

7. Method, according to claim 3, wherein:
the PING command comprises data fields selected from the group consisting of a device address for the mobile unit, an identifier for the mobile unit, a message length, and data; and
the ECHO response comprises data fields selected from the group consisting of an identifier for the mobile unit, a message length, and data.

8. Method, according to claim 3, further comprising:
at each Base Station, maintaining information about connections between mobile units and neighboring Base Stations, wherein the information is selected from the group consisting of connection number, handset ID, Base Station ID, handoff status and handset detection status.

9. Method, according to claim 8, wherein the handset detection status information comprises information selected from the group consisting of number of successful PING, time of last successful PING, quality measurements for successful PINGs.

10. Method, according to claim 3, wherein the mobile unit is a device selected

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from the group consisting of:

telephone handset, standard cordless telephone handset, cellular telephone handset, personal data device, personal digital assistant (PDA), computer, laptop computer, e-mail server, a device utilizing point-to-point protocol (PPP) to the Internet via a central remote access server, a headset, a personal server, a wearable computer, a wireless camera, and a mobile music player.

11. Method, according to claim 3, further comprising:

providing communication links between the Base Stations, wherein the communication links between the Base Stations are selected from the group consisting of RF links and land lines; and

transferring connection status information and rough synchronization information between the Base Stations over the communications links.

12. Method, according to claim 3, wherein:

the wireless communication system comprises a wireless private branch exchange (WPBX) handling calls from mobile units comprising handsets.

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